NEW MINERAL NAMES

Preobrazhenskite


The mineral is wide-spread in small amounts in several parts of the area. It occurs in colorless, lemon-yellow, and dark gray nodules in fine-grained halite-polyhalite rock and encloses kaliborite and boracite. In places it has been partially replaced by inyoite.

Chemical analysis by E. M. Petrov and V. P. Erekhovich gave $B_2O_3$ 60.91, $MgO$ 20.82, $CaO$ 0.01, $K_2O$ 0.25, $Na_2O$ 0.38, $Cl$ 0.82, $Br$ 0.008, $SO_3$ not found, $Rb_2O$ 0.11, $SiO_2$ 0.13, insol. 0.06, $H_2O^{-}$ 0.20, $H_2O^{+}$ 14.30, sum 98.00%. This corresponds to $3 MgO \cdot 5B_2O_3 \cdot 4.5H_2O$.

Hardness 4½–5. G. not given. Optically nearly uniaxial, positive, with $n = 1.594-1.596$, $\beta \approx 1.573-1.576$. X-ray study by V. I. Appolonov indicated low symmetry; the powder data (not given M.F.) differ from those of other borates. A D.T.A. curve by V. P. Ivanov shows a large endothermic break at 540–600°, a sharp exothermic break at 730–750, and a moderate endothermic break at 900–950°.

The name is for Pavla Ivanovich Preobrazhensk (1874–1944), “tireless investigator of salt deposits of the U.S.S.R.”

Mauritzite


The mineral occurs in a quarry in hydrothermally altered pyroxene-andesite at Mula-tóhegy near Erdőbenye, Hungary, with quartz, tridymite, opal, barite, halotrichite, calcite, siderite, and ilmenite. It is in mammillary forms, intimately mixed with chalcedony (“quartzin”). It is bluish-black, dull, streak and powder yellowish-brown with a greenish tinge. Sp. gr. and hardness not determined. Under the microscope straw-yellow, transparent, apparently isotropic with mean $n = 1.6035$.

Analysis gave $SiO_2$ 38.62, $TiO_2$ tr., $Al_2O_3$ 6.29, $Fe_2O_3$ 19.90, $FeO$ 6.29, $MnO$ 0.12, $MgO$ 9.83, $CaO$ 1.42, $K_2O$ tr., $Na_2O$ tr., and $P_2O_5$ tr., $H_2O^{-}$ 12.90, $H_2O^{+}$ 4.99, $CO_2$ 0.18, sum 100.54%. This corresponds, after deducting all $SiO_2$ as quartz and $CO_2$ as $CaCO_3$ to 2 $(Mg,Fe)O \cdot (Fe, Al)_2O_3 \cdot 5H_2O$. The water is all lost at 150° and the dehydration is reversible for material heated up to 200°. The D.T.A. curve shows a single large endothermic break at 150°. The mineral dissolves in cold (1+1) HCl, leaving a residue of chalcedony.

The x-ray pattern shows lines of following spacings (Å) and intensities: 14.5 5, 4.54 4, 2.619 4 (broad), 1.735 2, 1.531 5, 1.318 3 (broad). This is shown to correspond closely to the pattern of a member of the montmorillonite group with $a = 5.31$, $b = 9.19A$.

The mineral is interpreted as being a silica-free montmorillonite of formula

$$(Al_{1.52}Fe_{1.48}^{3+}2H_{30})(Fe_{1.52}^{3+}Fe_{1.67}^{2+}2Mg_{3.96}Ca_{0.31})O_{30}(OH)_{4}.$$ 

The name is for Bela Mauritz, 1881–, Hungarian mineralogist.

DiscussioN.—I find it very difficult to accept the authors’ interpretation. The mineral corresponds very well with a montmorillonite intermediate between nontronite and griffithite (compare Faust, J., Wash. Acad. Sci. 45, 66–70 (1955)), if most of the $SiO_2$ found belongs to the mineral. The powder pattern shows no quartz lines and the authors’ interpretation means that 38.6% quartz, even though present as chalcedony, gave no pattern. It is also hard to believe that a hydrous oxide with the formula calculated could be dehydrated and rehydrated reversibly when heated to temperatures up to 200°. Further work is obviously necessary.

M. F.